1971 annual report
National Starch and Chemical Corporation

National

DIRECTORS

Carlyle G. Caldwell
President

Edward B. Conway
President, Edward B. Conway Inc., New York, N. Y.

Henry A. Correa
President, ACF Industries, New York, N. Y.

Frank K. Greenwall
Chairman of the Executive Committee

Gustav O. Lienhard
Chairman of the Board of Trustees, The Robert Wood Johnson Foundation

Robert W. Merritt
Executive Vice President

William A. Mitchell
Retired, Formerly Chairman, The Central Trust Co., Cincinnati, Ohio

Donald D. Pascal
Chairman of the Board

Oscar M. Ruebhausen
Partner, Debevoise, Plimpton, Lyons & Gates

Berkley V. Schaub
Vice President

Sidney F. Thune
Executive Vice President

HONORARY DIRECTORS

Joseph J. Daniels
Partner, Baker & Daniels, Indianapolis, Indiana

John F. Fitzgerald
Formerly Vice President of the Company

OFFICERS

Donald D. Pascal
Chairman of the Board and Chief Executive Officer

Frank K. Greenwall
Chairman of the Executive Committee

Carlyle G. Caldwell
President

Robert W. Merritt
Executive Vice President, Starch Division

Sidney F. Thune
Executive Vice President, Adhesive and Resin Divisions

Berkley V. Schaub
Vice President, International Operations

Harold R. Sampson
Vice President, Employee Relations, and Secretary

S. A. Segal
Vice President, Administration and Finance

A. G. Battaglia
Vice President

Robert A. Bintz
Vice President

Wallace K. Grubman
Vice President

Lester Klempner
Vice President

Francis L. Murphy
Vice President

Robert B. Albert
Treasurer

Herbert J. Baumgarten
Assistant Vice President and Counsel

John C. Clay
Assistant to the Chairman of the Board

Robert A. DeWolfe
Assistant Vice President

J. Donald George
Assistant Vice President

William H. Stone
Assistant Vice President

General Counsel

Debevoise, Plimpton, Lyons & Gates

Auditors

Main Lafrentz & Co.

Transfer Agent

Morgan Guaranty Trust Company of New York

Registrar

The Chase Manhattan Bank

Annual Meeting

May 1, 1972, Hotel Biltmore, N. Y.

On the cover: Artist's rendition of sub microscopic structure of amylose and amylopectin molecules packed in the cornstarch granule.

NATIONAL STARCH AND CHEMICAL CORPORATION
ANNUAL REPORT
FOR THE YEAR ENDED DECEMBER 31, 1971

COMPARATIVE HIGHLIGHTS

	1971	1970
Net sales	**$149,338,057**	$134,941,493
Income before taxes from consolidated operations	**$ 19,373,029**	$ 16,876,551
Income after taxes from consolidated operations	**$ 10,127,011**	$ 8,848,374
Equity in net earnings of joint ventures	**$ 1,066,319**	$ 862,146
Net income	**$ 11,193,330**	$ 9,710,520
Depreciation	**$ 4,875,462**	$ 4,768,983
Cash dividends: preferred	**$ 472,500**	$ 472,500
common	**$ 3,719,812**	$ 3,487,130
Capital additions	**$ 9,585,952**	$ 5,653,473
Plants, properties and equipment (net)	**$ 52,526,434**	$ 48,261,343
Net income per common share	**$1.84**	$1.59
Cash dividends per common share	**$ .64**	$ .60
Average shares of common stock outstanding	**5,812,304**	5,811,883
Number of common stockholders	**3,288**	3,304

CONTENTS

Donald D. Pascal, *left*, Carlyle G. Caldwell, *right*.

TO OUR SHAREHOLDERS

We are pleased to report another record year in sales and earnings. Sales increased 10.7% to $149,338,057 and earnings increased 15.3% to $11,193,330. 1971 marked our 21st year as a public company. During this period, our compound growth rate per year was 9.9% in sales and 10.9% in earnings.

Like many companies, we have gone to "equity accounting" for our non-consolidated joint ventures in 1971. Accordingly, we have included our full share of earnings in these companies, rather than only the dividends received from them. 1970 figures have been restated on a comparable basis. These earnings are shown separately in our income statement and amounted to 14.8¢ per share in 1970 and 18.3¢ per share in 1971.

On January 31, 1972 the Board of Directors declared a quarterly cash dividend of 16¢ per share, continuing the quarterly rate paid in 1971, payable on February 25, 1972 to stockholders of record on February 11, 1972.

The Board also declared a 5% stock dividend to be paid March 30, 1972 to stockholders of record on March 10, 1972. Only three quarterly cash payments will be made in 1972 on the new shares. A continuance of the 16¢ quarterly cash dividend rate would increase 1972 cash payments by 3¾% over 1971 payments, within the guidelines of the government's economic stabilization program.

Continuing our pattern, an offering of shares of our common stock under the Employees Stock Purchase Plan was made in January 1971 and completed in January 1972. 11,237 shares were purchased by our employees at $26.50 per share.

To a much greater extent than in 1970, our sales increase in 1971 in this country was the result of increased volume and product mix improvement rather than price increases. Improved profit margins were obtained, reflecting primarily the improvement in product mix and our continuing cost control efforts, which held our overhead cost increase to less than our sales increase. While the record corn crop harvested in 1971 resulted in substantially lower corn prices in the fourth quarter, earnings were not significantly affected since the bulk of our fourth quarter starch sales came out of inventories manufactured from higher-cost corn.

Reduced interest costs, resulting from a significant reduction in our outstanding debt and the drop in interest rates, also improved our earnings.

We should note, before leaving the domestic scene, that the restrictions of the government's economic stabilization program had no important effect on our earnings in 1971. The effects of the program for 1972 are not yet clear—for example, the extent to which we will be permitted to pass through such cost increases as may occur.

International operations, including consolidated wholly-owned subsidiaries and unconsolidated joint ventures, showed a somewhat greater rate of improvement in both sales and earnings in 1971 than domestic operations. Our share of foreign joint-venture sales (not included in consolidated sales), added to sales of our foreign consolidated subsidiaries, reached a record $46 million in 1971.

Translation of foreign assets and liabilities, at higher year-end exchange rates than last year, resulted in a small pick-up in net income. This was approximately offset by a write-down in the value of our potato starch plant in Grafton, N. D., which was closed because income from the operation was not sufficient to justify the substantial investment necessary to meet government requirements with respect to pollution.

Several acquisitions made in 1971 in the U. S. and abroad are described in later sections of this report. These acquisitions, each of which was effective for only part of the year, contributed, in the aggregate, approximately 3% of 1971 sales. Their full effect on sales will not be realized, of course, until 1972. Their aggregate contribution to earnings in 1971 was not significant; however, they should be making most of their expected contribution to earnings by the end of 1972.

Our strong research and development program continued at high levels in 1971. Expenditures increased slightly from 1970 to about $6½ million. In the sections following this letter, we have described how some of these efforts have led to our improved product mix and to the broadening of our product lines. Also, we are increasing our efforts to seek out technology available for license or purchase which can be profitably related to our present business. As an example, early in 1972 we obtained an exclusive license from Esso Research and Engineering Corporation to make and sell sulfonated polystyrene resins in the U. S.

Capital additions were $9,585,952 in 1971. Basically, the increase from 1970's $5,653,473 is attributable to fixed assets which were part of acquisitions. The most significant expenditures were for two projects mentioned in last year's report, namely the completion of new LePage facilities near Toronto and the new Proctor Chemical plant in Salisbury, N. C. We also undertook an expansion of starch drying capacity at Indianapolis. Capital expenditures are expected to be moderately greater in 1972 than they were in 1971, excluding acquisitions. Important projects for 1972 include new pollution control facilities at Meredosia, new adhesive plants in Vancouver, and Villefranche, France, and the construction of about 30,000 square feet of office space at our Plainfield facility, permitting some consolidation of functions and the conversion of what is presently office space in our laboratory buildings to additional laboratory space.

In 1971, we continued and intensified our anti-pollution efforts, both in our own plants and in the development of products and systems to help our customers in their efforts. Our commitment to employee health and safety has similarly been re-emphasized and improved control systems have been established.

We also formalized our long-standing policy of providing equal employment and promotion opportunities for all, by appointing a Director of Equal Opportunity with the responsibility of monitoring and implementing this policy at all locations. A new formalized "Affirmative Action Program" is part of this responsibility.

With sorrow we note here the passing, on September 4, 1971 of Herbert C. Piel, and on January 16, 1972 of Gordon Grand, Jr. Mr. Piel, an Honorary member of the Board of Directors, was a Vice President and Director until his retirement in 1958 after 51 years of dedicated service to National. Mr. Grand, Chairman of Olin Corporation, had been a member of our Board of Directors since 1964. We will miss his quick understanding and warm counsel.

Effective January 31, 1972, Gustav O. Lienhard and Berkley V. Schaub became Directors. Mr. Lienhard is Chairman of the Board of Trustees of the Robert Wood Johnson Foundation, having retired recently as President of Johnson & Johnson Worldwide. His demonstrated ability and experience will give us added strength in the direction of our business. Mr. Schaub, with National since 1938, is Vice President for International Operations, and has been active in this area since 1949. On the same date, A. G. Battaglia, Wallace K. Grubman and Francis L. Murphy, formerly Assistant Vice Presidents, were elected Vice Presidents, and Herbert J. Baumgarten was elected Assistant Vice President and Counsel.

In January 1972, John F. Fitzgerald was made Honorary Director. Mr. Fitzgerald, with the company since 1935, had been Vice President and Director and will continue with National as a consultant.

While the future is never certain, we feel the foundations of our profitable growth are stronger than ever. Constant evaluation, training programs and a policy of promoting from within have given us dedicated, talented and effective people. Our research, marketing, production and administrative capabilities have increased measurably. We believe that the policies by which we have accomplished our growth thus far will continue to be effective in the future.

To all of our people, for their loyalty, effort and accomplishment, once more we say "Thanks" and "Well done!"

Donald D. Pascal
Chairman of the Board

Carlyle L. Caldwell
President

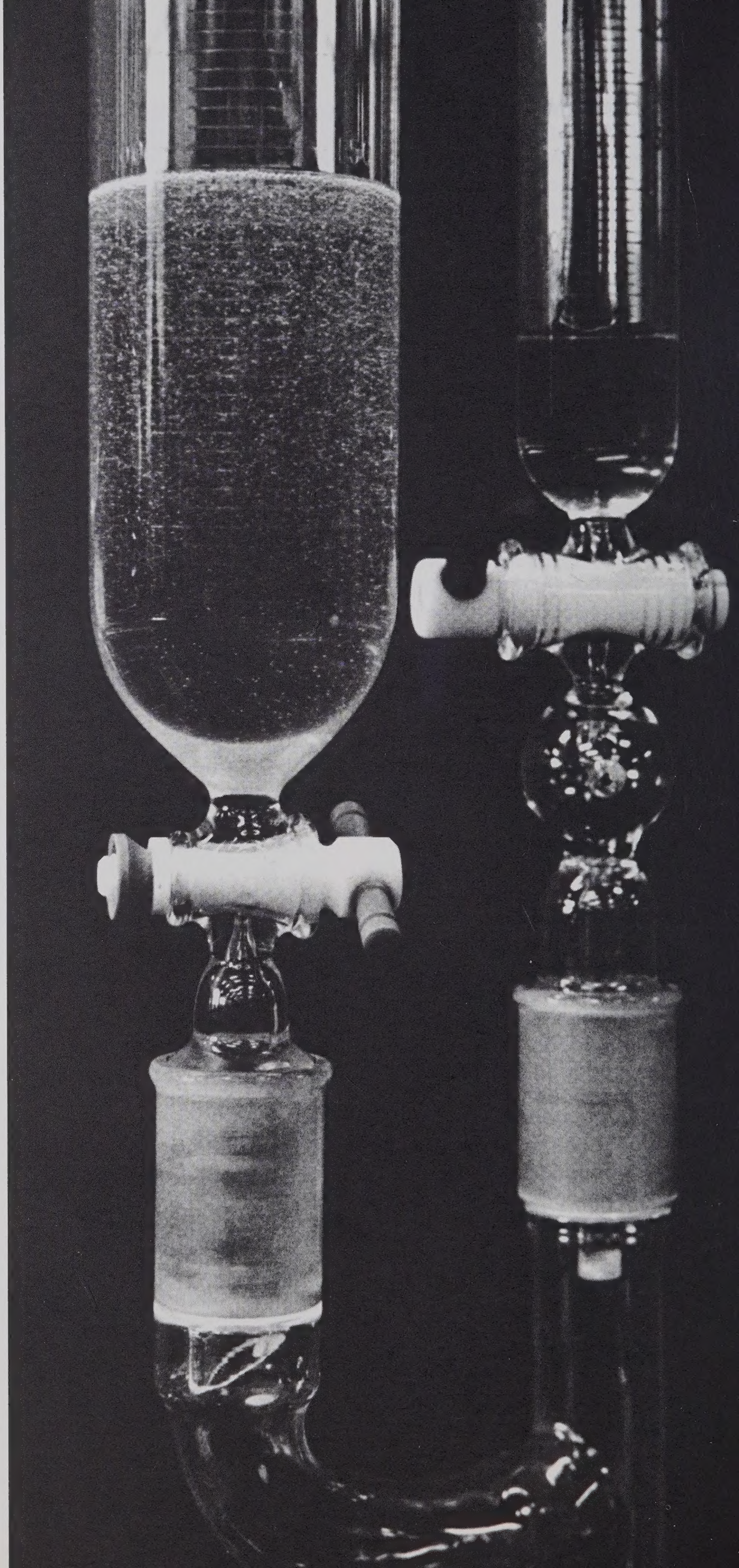
March 3, 1972

CORPORATE GROWTH AND DEVELOPMENT

Over the past 10 or 20 years, National has experienced a growth rate of about 10% per year. Our plan for corporate expansion and development for the future is a broadened model of the one that has been successful in the past.

Basically, National is a primary supplier of highly specialized starch, adhesive and chemical products for many industries. Our products go into, among other things, foods, packaging, paper, textiles, furniture, cosmetics, pharmaceuticals, construction, paints and coatings.

We do not simply market specialties; we support sales of these products with applications research and technical service. This particular pattern was established when we first began marketing adhesives and the same philosophy has been extended



as we have added new product lines.

As a specialties manufacturer, we design products for specific end uses and in this way are an important factor in anticipating and solving technical problems of our customers and, indirectly, of their customers.

Our concept of future growth consists essentially of three parts. First, growth in current lines which we believe have substantial further potential. Second, extension of our activities to new products and markets which are related to our current business. Third, a concentrated effort to extend application of our research and technology throughout the world.

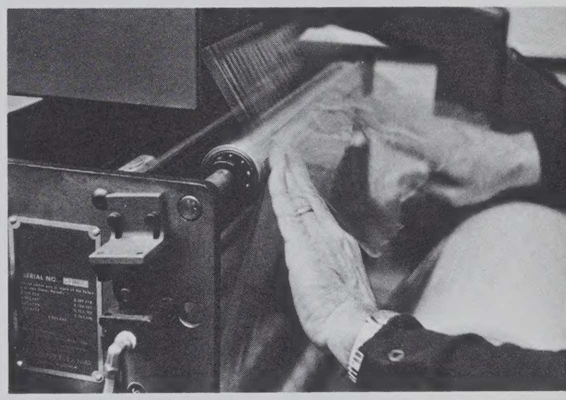
To carry out this plan, National directs its research activities toward the development of improved products and new products for industries we already serve as well as toward products for application in fields in which the Company could logically be an important factor.

An appreciable amount of our research expenditures is devoted to the refinement of our formulations and the improvement of our processing and raw material position in order to reduce costs, thus further extending our markets.

National's corporate growth plan is also implemented, both in this country and abroad, by a continuing search for technology available for licensing, for acquisitions, and for opportunities to enter into joint ventures which can profitably use our technology or other resources.

In all new endeavors, we look for a proprietary advantage that will assure us an added measure of success. Such advantages may stem from a strong patent position, technical service strength, marketing know-how, manufacturing expertise, and guidance of management personnel thoroughly experienced in the needs of the markets we serve.

The review of our activities which follows gives some specific illustrations of how this program has worked for us in 1971.



Infrared unit, *above*, "fingerprints" structure of chemical products for analytical purposes. Laminating equipment, *below*, tests efficiency of new types of specialty adhesives designed for film applications.

MARKET REVIEW

Adhesives

National continued to develop and improve its regular adhesives lines in 1971. For example, our line of adhesives for envelopes was redesigned to take into account such factors as greater hygienic considerations and the need for materials that are economical and efficient when used with the latest equipment.

Also, in the general packaging area, a new group of adhesives was developed for applying labels to both glass and plastic bottles with high speed machinery. These materials meet such end-use requirements as water resistance, ice proofness and excellent adhesion to coated bottles.

During the year, consumption of hot melt adhesives set records and this trend should continue. Hot melts are displacing more conventional adhesives used in general packaging and in the binding of books. Other growing applications are edge banding of furniture and fabrication of disposable items such as sanitary products, hospital gowns, diapers, and lamination of towels.

A special task force in the field of flexible packaging has been extremely effective in providing specialty adhesives and primers for film laminating and adhesion promoters for lamination of extruded products. A complete range of adhesives based on urethane one-and two-component systems is now available for flexible packaging applications.

Concentrated marketing efforts have produced good results in the pressure sensitive tape, label and decal fields. Performance of Tapon adhesives has been especially noteworthy in gummed tape applications.

In September, National purchased from the Coatings and Resins Division of PPG Industries their Bondmaster® and related lines, including manufacturing facilities at Bloomfield, N. J. and Berkeley, Calif. This gives the Company added strength in solvent adhesives and provides us with a solid introduction to mastics and sealants. Primary markets are in the furniture, building, automotive, and factory-fabricated and mobile home industries.

Resins

Sales of latex for fire retardant paints expanded in 1971 and should continue upward as public awareness of the efficacy of such paints increases.

Application of latex binders enjoyed a similar upswing as the result of re-formulation from solvent to aqueous systems by manufacturers of maintenance and industrial paints—e.g., shop primers for metal and wood paneling sanding sealers, filler sealers, ground coat and clear topcoats.

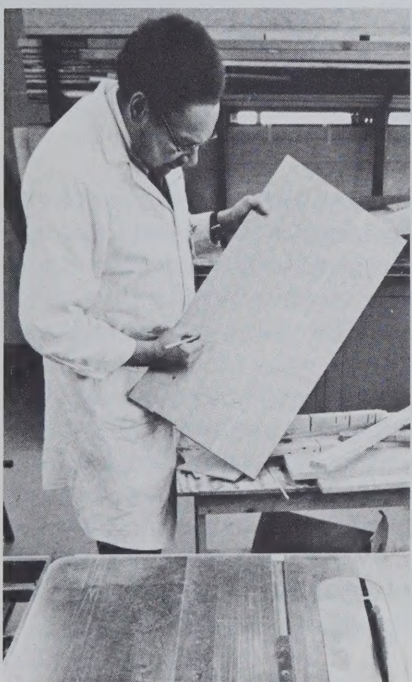
Governmental pressure for reduction in air pollution will be a factor in expanding the market

Commercialization of chemical compounds is preceded by pilot plant production. In this example, manufacture of a new material in a pressure reactor.

for latices and water-soluble products.

Another growing market for National is use of latex finishes in textured coatings for plywood. The film thickness of such coatings (four times that of conventional paints) provides a weather-resistant, flexible finish which enables mobile and modular home manufacturers to produce an attractive exterior using relatively inexpensive plywood.

Dielectrically heat-sealable binders and coatings showed appreciable growth in 1971 for vinyl automotive interiors. The impact of fire retardant specifications for automotive interiors is being felt and binders which are characterized by fire resistance and heat sealability are currently being marketed by National.

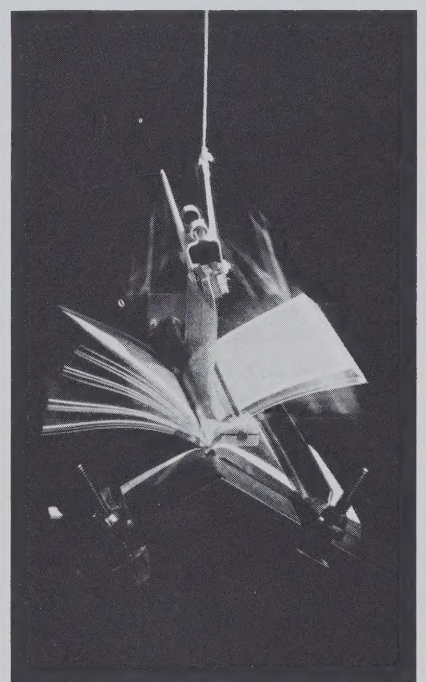


One step in evaluating new wood adhesives in edge bonding to typical surfaces.

Paper and Paperboard

The Company's position as a product supplier and problem-solver to the paper industry was further solidified in 1971. During the period, National was able to improve its product mix significantly, placing more emphasis on specialties and less on commodity items.

Today paper mills face many challenges. As in the past, they must produce high-quality, versatile paper grades at lower costs simply to remain competitive. Moreover, they are confronted by overcapacity and ecological pressures.



Adhesives for bookbinding must undergo this very practical flexing test.

Our polyelectrolyte flocculant, Natron® 86, permits mills to recover reusable solids from effluent wastes and helps keep oxygen levels safe for fish and plant life. Furthermore, it serves as a processing additive to reduce costs of paper manufacture.

The paper industry continues to replace higher-cost proteins and casein in water-resistant paper coatings with Cato-Kote.®

National's Cato-Size® products constitute another growth area. Not only do these sizes improve surface strength of paper products but they also minimize loss of solids to effluent streams.

Sales of resin products for use in coated web offset paper and coated food packaging board also increased in 1971.

During 1971, National made significant progress with a new, patented process for sizing paper and paperboard. The process utilizes a unique sizing agent, Fibran™ 68, together with National's cationic starches and resins. Intensive marketing efforts are now underway both domestically and abroad.

Fibran 68 replaces rosin sizing, which has been used for very many years to upgrade resistance of paper to penetration by water, ink and other aqueous fluids. Since rosin is a natural product derived from wood, whereas Fibran 68 is synthetic, Fibran 68 is more versatile and can be tailored to make alkaline, acid and neutral grades of paper.

Even at a higher per pound cost than rosin, the much greater efficiency of Fibran 68 results in reduced operating costs by paper manufacturers. One part of Fibran 68 will normally replace three to six parts of fortified rosin size.

A new chemically modified starch adhesive for fabricating corrugated board, Vinamyl™, gained widespread acceptance in 1971. The product is designed to make board for use in shipping containers which must be water resistant. Vinamyl allows substantially higher production speeds on heavy-weight, difficult-to-fabricate corrugated board while providing impermeable bonds under extremely demanding climatic conditions.

Vinamyl has already captured about half of a market formerly held by a competitive adhesive which had been considered standard by the industry. For example, we estimate that more than two-thirds of all wax-impregnated, hydro-cooled containers used to ship fresh poultry in 1971 were fabricated from corrugated board made with Vinamyl.

Food

In 1971, our research department developed numerous new food starches. Some of these starches are still undergoing evaluation while others are already being used commercially by large food companies. It is anticipated that many of these new starches will become commercial successes in applications which range from pudding to canned meat products.

One of our newer products, Purity® Gum BE, is showing increasing usage as an emulsion stabilizer in place of Gum Arabic.

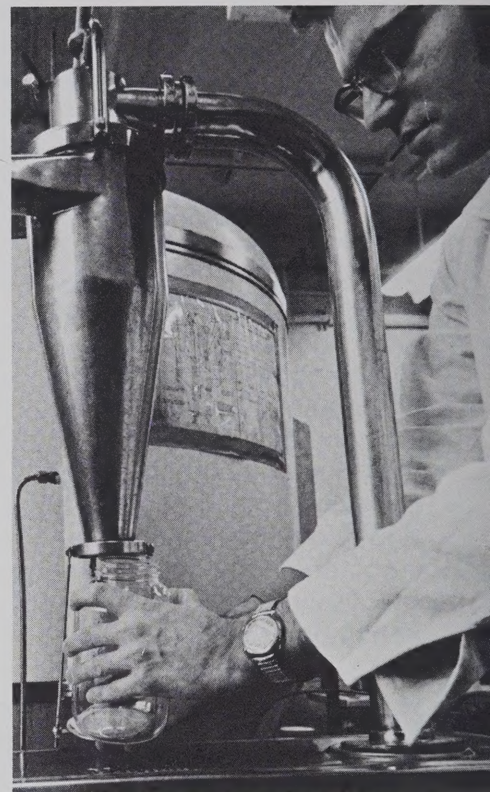
Growing demand was also noted for established products, such as Clearjel® and Col Flo® 67, which have become standards of the food industry. Continued growth for products introduced in recent years has more than justified past efforts. These include Textaid®, Crisp Film®, Baka-Snak®, Purity W, Pure-Flo® and Purity Gum 539.

In October, the Company acquired the business and facilities of the Food Products Division of Universal Oil Products. The acquisition extends National's base in the food industry and represents our first entry into food seasonings.

Renamed Seasonings, Inc., the division will operate as a subsidiary of National. Seasonings, Inc. supplies custom-blended products to the potato chip and snack food industries as well as a line of meat tenderizers. National's marketing resources should help expand Seasonings, Inc. sales into many areas besides the snack field where it is already a dominant factor.

Textiles

Improved sales of textile products were achieved in 1971 largely as a result of increased consumption of National's synthetic materials.



Spray drier in lab used for encapsulating flavors with starch products.

A new market for textile chemicals was opened by the Company in 1971 with the introduction of Hi Loft™. A modified, self-reactive polyvinyl acetate resin, Hi Loft acts as a bonding agent for low-density, polyester-containing Fiberfill, which has broad applications in quilting for apparel and household items and in padding for furniture.

Performance characteristics of Hi Loft are excellent durability to laundering and dry cleaning;

Laboratory equipment duplicates operation of industrial paper coating machinery at speeds up to 2000 feet per minute. This permits evaluation of new coating materials to determine performance characteristics at point of application.

non-discoloration; resiliency; load supporting capacity, and ease of application. Previously, bonding of Fiberfill was done almost exclusively with acrylic resins.

The development of fire-retardant resin formulations has been an important part of National's textile program. An example of this is Vi Tard® specialty resin, a formulation based on proprietary National technology which has been adopted by the automotive industry as a back coating to impart permanent fire retardance to automotive upholstery and other fabrics. Among the additional advantages of these new resins are excellent hand, improved dimensional stability, seam strength, and long-term durability.

Another successful line of specialty resins developed by National are polyvinyl acetate copolymers for use as sizes for glass fibers. Besides facilitating glass fabric processing, the resins contribute significantly to the properties of plastics and other structural materials in which glass fibers serve as reinforcements.

Another expanding area of application for National's textile chemicals are in specialty finishing resins to impart permanent press and durable finish characteristics to fabrics of cotton and synthetic fiber blends.

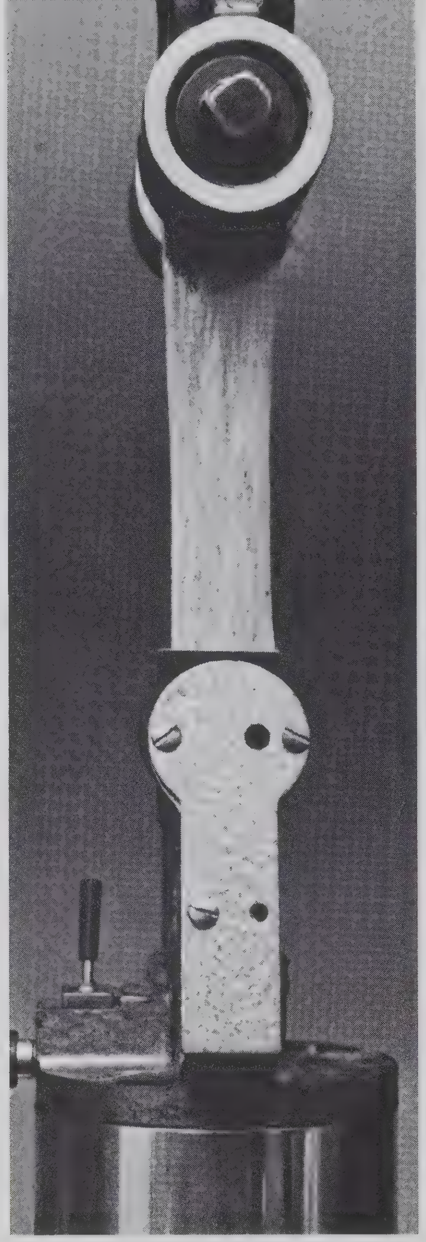
Disposables and Nonwovens
Concentration on products for disposables, nonwovens and paper saturation continues at a high level reflecting our position as a major supplier to this industry, which is growing at an impressive rate. During the year, sales increased both domestically and abroad.

Primary research efforts are directly related to solving particular industry problems. Goals include improved fire retardant and water repellent binders, flushable binders for use in disposable products, and improved application techniques for binders. In addition, National chemists are developing more efficient binders for wet end addition in the manufacture of wet-laid nonwovens and creating adhesives with better fire retardance, sterilizability, and polyolefin adhesion.

As a supplier of resins for paper saturation, the Company is very much involved in the current challenge of developing fire retardant automotive air filters. National is actively working to improve the performance of resins used in fabricating such filters which, in the near future, will have to meet stringent governmental regulations requiring automotive engines designed to minimize air pollution.

Cosmetics and Pharmaceuticals

National's products for hair sprays, conditioners and setting lotions showed strong growth patterns in a market dominated by the "natural look" in hair styles.



Testing equipment, *above,* measures strength of binders developed for nonwoven products. Resins going into the manufacture of polyester padding, *below,* for quilts and clothing which must be fire resistant.

Broad consumer acceptance in "natural-hold" products was evident in both retail and salon markets. National's ability to research and produce new formulations with proper hair control characteristics has obtained additional support from the Company's new Research Beauty Salon located in Plainfield. This salon was opened in June to allow faster reaction time to new market trends and to give an added dimension to customer service and product development capabilities.

National also devoted considerable research to new resin systems which should further broaden the Company's base in the cosmetic field. Successful marketing of National's cosmetic polymers has led to their incorporation in many hair care systems throughout the world.

Among the new products developed for the pharmaceutical industry are specialty binders and fillers for tablets and capsules. Employed as emulsifying and encapsulating agents, these

products exhibit excellent adsorption properties. Additionally, the barrier (protection) properties of these new binders and fillers favor their use in pharmaceuticals which might be exposed to prolonged storage conditions in air.

A complete line of starches suitable for dusting agents was also well received by pharmaceutical firms in 1971. Safety of these specialty starches is a distinct advantage in pharmaceuticals and in baby care products.

Organic Chemicals

With the completion of the new Cedar Springs Plant at Salisbury, N. C., Proctor Chemical Company expanded its capability to produce organic chemical specialties. Also during 1971, a number of custom manufacturing projects reached maturity.

Several joint undertakings with National were initiated in 1971 and sales from these projects are expected to develop during 1972. We expect that Proctor's production capabilities will increasingly complement our development and marketing abilities.

Process reaction vessel at Proctor Chemical.

INTERNATIONAL

Corporate growth was particularly evident in our international operations. In most countries, sales and profits were at record levels. Further, a number of our efforts to expand internationally by way of acquisitions and joint-ventures reached fruition in 1971.

In the first quarter, National announced the acquisition of the adhesives operation in England of Associated Adhesives Limited, a subsidiary of Unilever Ltd. which made both industrial and retail types of adhesives. The industrial adhesive segment became part of National Adhesives and Resins Limited. The retail small-package adhesives business has become a separate subsidiary, operating as Gloy Products under the supervision of our subsidiary, LePage's Ltd. of Canada. LePage's products are expected to provide rapid expansion of the Gloy lines in England.

Early in 1971, we acquired 49% of the common stock of Adhesivos y Gomas de Venezuela, C.A., a principal manufacturer of industrial adhesives in Venezuela.

In October, National increased its equity in Bericol, our adhesives affiliate in Lyon, France, to a majority position.

In September, LePage's Ltd. purchased the Rez wood stains and finishes operations of Monsanto Canada Limited. Rez, the most widely known wood stain product line in Canada, provides a highly complementary series of products for LePage's, within the firm's existing channels of distribution.

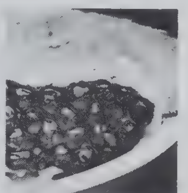
In the fall, approval was given by the Japanese Government to a joint venture with Oji Corn Starch, one of Japan's largest corn refiners. A new plant is currently under construction to produce National's specialty starches, which are now being introduced to this market.

In Australia, early in 1972, we acquired the adhesive business of Jaede Chemicals Pty., Ltd., manufacturers of specialized products in Melbourne. Operated as a separate subsidiary of Inter-National Adhesives and Resins in Sydney, Jaede Inter-National Pty., Ltd. now provides us with a base in an additional important area.

Donald D. Pascal, Chairman of the Board, and Berkley V. Schaub, Vice President, International Operations, tour facilities of Oji Corn Starch in Japan. Trips were also made in 1971 by Mr. Pascal to installations of Delft-National Chemie in Holland, *upper right*, and Bericol, our adhesives affiliate in Lyon, France, *lower right*.

Our 1971 "TALENT FOR INVENTION" series.

While we were helping the hairdo hold up, we took on the pie that kept falling down.



To preserve curls in all sorts of weather, National developed special surface-active resins for hairspray so the hairdo resists wind and humidity, yet is easy to comb and soft to touch.

At the same time, to keep pie fillings standing up while they wait around, we produced specialty starches for bakers that firm-up fillings without altering taste, texture or appearance.

At National, we produce specialty products for specific problems. Specialty resins for cosmetics, paint, paper, textiles and nonwoven fabrics. Specialty starches for foods, paper, textiles, pharmaceuticals. Specialty adhesives for packaging, furniture, bookbinding, converting. Even specialty products for pollution control.

Our strength comes from an unwavering commitment to research and more than 35 manufacturing plants here and abroad. But our talent comes from people. Dedicated, imaginative, inventive. Ready to make your problems seem like no problems at all.

National Starch and Chemical Corporation, 750 Third Avenue, New York, N.Y. 10017. Australia, Canada, England, France, Holland, Japan, Mexico, South Africa, Venezuela.

National Starch and Chemical.
A talent for invention.

While we were helping put together the paper bikini, we took on the bag that couldn't hold its own.

To help women keep up with fashion —and advance the technology of disposables—we developed specialty resins and adhesives that make nonwoven and disposable products stronger, softer feeling and easier to manufacture.

At the same time, to overcome the problem of bursting bags and flapping labels for both packagers and consumers, we perfected ultra-pure hot melt adhesives that stick to the job better than ever before.

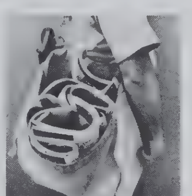
At National, we produce specialty products for specific problems. Specialty adhesives for packaging, furniture, bookbinding, converting. Specialty resins for cosmetics, paint, paper, textiles and nonwoven fabrics. Specialty starches for foods, paper, textiles, pharmaceuticals. Even specialty products for pollution control.

Our strength comes from an unwavering commitment to research and more than 35 manufacturing plants here and abroad. But our talent comes from people. Dedicated, imaginative, inventive. Ready to make your problems seem like no problems at all.

National Starch and Chemical Corporation, 750 Third Avenue, New York, N.Y. 10017. Australia, Canada, England, France, Holland, Japan, Mexico, South Africa, Venezuela.

National Starch and Chemical.
A talent for invention.

While we were helping produce the one-handed book, we took on the mailman's weight problem.



To keep bookbindings from breaking their spines, National developed a hot melt adhesive strong enough to be bent double, flexible enough to snap right back.

At the same time, with publishers facing rising postal rates—and mailmen heavier loads—we led in the development of cationic specialty starches and resin products for papermaking that help reduce a paper's weight yet retain its printing quality.

At National, we produce specialty products for specific problems. Specialty starches for foods, paper, textiles, pharmaceuticals. Specialty adhesives for packaging, furniture, bookbinding, converting. Specialty resins for cosmetics, paint, paper, textiles and nonwoven fabrics. Even specialty products for pollution control.

Our strength comes from an unwavering commitment to research and more than 35 manufacturing plants here and abroad. But our talent comes from people. Dedicated, imaginative, inventive. Ready to make your problems seem like no problems at all.

National Starch and Chemical Corporation, 750 Third Avenue, New York, N.Y. 10017. Australia, Canada, England, France, Holland, Japan, Mexico, South Africa, Venezuela.

National Starch and Chemical.
A talent for invention.

While we were helping launder the stream, we took on the creases that came out in the wash.

To help papermakers fight pollution and make mill operations more economical, National developed a special polyelectrolyte flocculant. It recovers re-usable solids from effluent wastes and in turn helps keep oxygen levels safe for fish and plant life.

At the same time, we came up with specialty chemicals that impart such properties as permanent press and wash-and-wear to a wide variety of fabrics.

At National, we produce specialty products for specific problems. Specialty starches for foods, paper, textiles, pharmaceuticals. Specialty adhesives for packaging, furniture, bookbinding, converting. Specialty resins for cosmetics, paint, paper, textiles and nonwoven fabrics.

Our strength comes from an unwavering commitment to research and more than 35 manufacturing plants here and abroad. But our talent comes from people. Dedicated, imaginative, inventive. Ready to make your problems seem like no problems at all.

National Starch and Chemical Corporation, 750 Third Avenue, New York, N.Y. 10017. Australia, Canada, England, France, Holland, Japan, Mexico, South Africa, Venezuela.

National Starch and Chemical.
A talent for invention.

NATIONAL STARCH AND CHEMICAL CORPORATION
AND SUBSIDIARY COMPANIES

CONSOLIDATED STATEMENT OF INCOME

For the Year ended December 31,	**1971**	1970
Net sales	**$149,338,057**	$134,941,493
Cost of sales	**102,924,215**	92,852,666
Gross profit	**46,413,842**	42,088,827
Selling, general and administrative expense	**25,735,594**	23,633,916
Operating profit	**20,678,248**	18,454,911
Other income	**1,382,549**	1,034,574
Total income	**22,060,797**	19,489,485
Other charges	**2,687,768**	2,612,934
Income before taxes from consolidated operations	**19,373,029**	16,876,551
Provision for federal, foreign and state taxes on income	**9,246,018**	8,028,177
Income after taxes from consolidated operations	**10,127,011**	8,848,374
Equity in net earnings of unconsolidated joint ventures	**1,066,319**	862,146
Net income	**11,193,330**	9,710,520
Preferred stock dividend requirement	**472,500**	472,500
Net income applicable to common stock	**$ 10,720,830**	$ 9,238,020
Net income per common share (Conversion of preferred stock would not be dilutive)	**$1.84**	$1.59

CONSOLIDATED STATEMENT OF RETAINED EARNINGS

For the Year Ended December 31,	**1971**	1970
Retained earnings, January 1:		
As previously reported	**$40,346,576**	$34,876,962
Adjustment for equity accounting—see Note	**990,222**	708,946
As restated	**41,336,798**	35,585,908
Net income	**11,193,330**	9,710,520
Total	**52,530,128**	45,296,428
Dividends:		
Common stock	**3,719,812**	3,487,130
Preferred stock	**472,500**	472,500
Total	**4,192,312**	3,959,630
Retained earnings, December 31	**$48,337,816**	$41,336,798

Note: The accompanying notes to financial statements are an integral part of these statements.

NATIONAL STARCH AND CHEMICAL CORPORATION
AND SUBSIDIARY COMPANIES

CONSOLIDATED BALANCE SHEET

December 31,	1971	1970
ASSETS		
Current Assets:		
Cash, including time deposits and equivalents	$ 5,562,899	$ 5,337,724
Marketable securities, at cost (market value: $236,132 and $646,170)	129,803	526,258
Accounts receivable:		
Trade	18,512,964	16,194,564
Other	2,210,305	2,037,044
Inventories, at lower of average cost or market:		
Finished goods	13,882,689	13,177,899
Raw materials and supplies	9,749,641	14,197,170
Total Current Assets	50,048,301	51,470,659
Investments	3,683,145	3,093,607
Property at cost:		
Land	2,303,488	2,058,769
Buildings and improvements	24,428,056	21,069,525
Equipment	68,123,613	64,140,202
Construction in progress and other	1,545,313	2,858,599
Total	96,400,470	90,127,095
Less accumulated depreciation and amortization	43,874,036	41,865,752
Property—net book value	52,526,434	48,261,343
Other Assets	4,664,369	2,289,398
Total	$110,922,249	$105,115,007
LIABILITIES		
Current Liabilities:		
Notes payable to banks	$ 998,100	$ 7,095,378
Long term debt due within one year	6,729,839	4,443,535
Accounts payable	6,436,752	4,522,985
Accrued taxes	2,956,827	3,214,019
Accrued expenses	2,831,446	2,174,180
Total Current Liabilities	19,952,964	21,450,097
Long Term Debt Maturing After One Year	8,332,461	9,609,377
Deferred Income Taxes and Other Credits	3,624,244	2,084,094
Stockholders' Equity:		
Preferred stock—No par; authorized 250,000 shares; issued 105,000 shares	105,000	105,000
Common stock—$.50 par; authorized 8,000,000 shares; shares issued, 1971—5,868,121, 1970—5,868,091	2,934,061	2,934,046
Paid in surplus	29,104,989	29,096,935
Retained earnings	48,337,816	41,336,798
	80,481,866	73,472,779
Less treasury stock at cost—common shares, 1971—55,085 shares, 1970—56,208 shares	1,469,286	1,501,340
Total Stockholders' Equity	79,012,580	71,971,439
Total	$110,922,249	$105,115,007

Note: The accompanying notes to financial statements are an integral part of this statement.

NATIONAL STARCH AND CHEMICAL CORPORATION
AND SUBSIDIARY COMPANIES

CONSOLIDATED STATEMENT OF CHANGES IN FINANCIAL POSITION

For the Year Ended December 31,	**1971**	1970
Source of Funds:		
Operations:		
Net income	**$11,193,330**	$ 9,710,520
Depreciation and amortization	**4,968,408**	4,840,484
Deferred credits	**1,540,150**	1,094,501
Equity in undistributed earnings of joint ventures	**(507,638)**	(281,276)
Funds Provided by Operations	**17,194,250**	15,364,229
Term debt—new	**5,452,923**	—
Other—net	**448,396**	254,638
Total	**23,095,569**	15,618,867
Use of Funds:		
Purchases of fixed assets	**9,585,952**	5,653,473
Purchases of intangibles and other assets	**2,512,691**	74,527
Cash dividends	**4,192,312**	3,959,630
Term debt—reduction	**6,729,839**	4,443,535
Total	**23,020,794**	14,131,165
Increase in Working Capital	**$ 74,775**	$ 1,487,702
Changes in Working Capital:		
Current assets—increase (decrease):		
Cash and marketable securities	**$(171,280)**	$ 1,540,533
Accounts receivable	**2,491,661**	1,618,915
Inventories	**(3,742,739)**	4,865,024
Total	**(1,422,358)**	8,024,472
Current liabilities—increase (decrease):		
Notes payable	**$(6,097,278)**	$ 3,867,827
Long term debt due within one year	**2,286,304**	1,400,463
Accounts payable	**1,913,767**	791,855
Accrued taxes and expenses	**400,074**	476,625
Total	**(1,497,133)**	6,536,770
Increase in Working Capital	**$ 74,775**	$ 1,487,702

Note: The accompanying notes to financial statements are an integral part of this statement.

NOTES TO FINANCIAL STATEMENTS

Consolidated Group—The consolidated statements include the accounts of all significant subsidiaries of the Company. The Company's investments in joint ventures, principally 50% owned and previously carried at cost, are now accounted for on the equity method. This change in accounting method is in accordance with the recommendations made by the Accounting Principles Board in 1971. The effect of this change has been to increase Net income by $281,276 and $507,638 for 1970 and 1971, respectively; $69,785 of this increase in 1971 being attributable to a change in dividend policy as to one joint venture. Opening Retained earnings has been appropriately adjusted to reflect this change in accounting method. The aggregate book value of the assets of the joint ventures exceeds the amount at which the investments are carried on the Company's books and this excess is not being taken into income.

Translation of Accounts—The accounts of foreign subsidiaries have been translated into United States dollars as follows:

net assets, at the exchange rate in effect at year-end except for property and investment accounts which were translated at historic rates of exchange; income and expense accounts, at the average rate of exchange prevailing during the year except for the provision for depreciation which has been translated on the same basis as the related asset accounts. Exchange gains and losses arising in translation have been included in income, except for an unrealized exchange gain on a term loan from the Company to its Canadian subsidiary, which was deferred in 1970 and which will be brought into income as realized. The increase in 1971 income arising from exchange gains is not significant.

Acquisitions—During 1971, the Company and its subsidiaries acquired, in separate transactions, certain of the assets and businesses of four other companies for an aggregate consideration of approximately $8,000,000. These acquisitions are all accounted for on the purchase method, and the operations of these businesses are included in the accompanying Consolidated Statement of Income from their respective dates of purchase. Annualized, the sales of these businesses are approximately 8% of consolidated sales but otherwise their operations, on an annual basis, would have had no material effect on consolidated results.

Depreciation—The Company's assets placed in service subsequent to January 1, 1968 are depreciated on the straight-line method. The remainder of the Company's fixed assets are depreciated on accelerated methods, principally the double declining balance method. For tax purposes, accelerated methods are used and deferred taxes are provided for the difference between the book and tax methods of computing depreciation. The Company's subsidiaries generally follow similar practices.

Other Assets—Included in Other Assets for 1970 and 1971 are $686,600 and $657,562, respectively, representing the still to be amortized cost of common stock issued to certain employees as more fully described under Stock Plans. Also included for 1970 and 1971 are $1,343,494 and $3,399,006 respectively, of unamortized cost over book value of purchased assets. The Company does not intend to amortize $1,828,588 of this latter amount unless there is a diminution in value. The excess of cost over book value arising from acquisitions initiated subsequent to October 31, 1970 is being amortized over a 40 year period on a straight-line basis.

Retirement Plans—The Company has several pension plans under which substantially all of its employees are eligible for coverage. The Company's policy is to fund pension cost accrued; prior service costs are amortized over 30 years. The assets of the pension funds exceed the actuarially computed value of vested benefits for all plans as of the latest valuation dates. In addition to these plans, certain subsidiaries have plans, but their combined cost is not a significant portion of consolidated pension expense, which is $790,898 and $965,407 for 1970 and 1971, respectively.

Stock Plans—Under the Company's 1951 and 1965 Stock Option Plans for Key Management Employees, 67,172 shares of common stock were issuable under options outstanding on January 1, 1970. During 1970, new options with respect to 27,979 shares were granted, to be reduced by the number of shares purchased pursuant to the exercise of existing options granted in

(notes continued on page 18)

Long Term Debt and Dividend Restriction—Long term debt consists of the following:

	1971	1970
Bank loan 5¼%, payable in stated semi-annual installments to 1972	**$ 2,925,000**	$ 5,025,000
Bank loan ⅜ of 1% above prime rate, payable in semi-annual installments to 1975	**6,550,000**	8,850,000
Note 4%, payable in four annual installments to 1975	**3,500,000**	—
Other long term debt	**2,087,300**	177,912
	$15,062,300	$14,052,912
Less current maturities	**6,729,839**	4,443,535
Long term debt maturing after one year	**$ 8,332,461**	$ 9,609,377

Under the terms of the bank loans, dividend payments on its stock, other than stock dividends, are limited to earnings of the Company accumulated after December 31, 1965, the unrestricted balance of which amounts to $27,973,691 on December 31, 1971. The Company is also required to maintain working capital in an amount not less than $16,000,000.

1966. In 1970, no options were exercised and, therefore, on December 31, 1970 there were issuable under options outstanding 67,172 shares of common stock. During 1971, no new options were granted and options with respect to 30 shares were exercised and options with respect to 5,982 shares lapsed, so that on December 31, 1971 there are issuable 61,160 shares of common stock under options outstanding on that date. All outstanding options are pursuant to grants made at 100% of the market price on the date of grant.

Also, the Company has an Employee Stock Purchase Plan Offering under which 11,237 shares are subscribed for on December 31, 1971.

In addition, on December 31, 1970 and December 31, 1971, there are outstanding 24,550 shares and 25,550 shares, respectively, of the Company's common stock, restricted in various ways for varying periods, which were granted in 1969 and 1971 pursuant to the Company's Stock Ownership Incentive Plan, to certain key employees. The aggregate market value at the time of the grant of these outstanding shares was charged to Other Assets and is being amortized over a period considered appropriate taking into account the years of future service estimated to be rendered by such employees.

The changes in Common stock, Paid-in surplus and Treasury stock accounts during 1971 were all due to transactions arising in connection with the Company's stock plans.

Income Taxes—The provision for federal, foreign and state taxes on income includes deferred taxes of $773,430 and $1,426,923 in 1970 and 1971, respectively. This provision also reflects the full amount of the United States investment tax credit, which is $116,559 and $58,341, respectively, for 1970 and 1971.

Preferred Stock—The 105,000 shares of preferred stock, convertible Series A, has a cumulative $4.50 per share dividend rate and is convertible at a conversion price of $45.33 per share of common stock into 231,618 shares of common stock at the option of the holders thereof. It is callable on July 1, 1974 at $104.50 per share and at annually reducing amounts to July 1, 1979 when it becomes callable at $100 per share. The aggregate preference on involuntary liquidation exceeds the stated value by $10,395,000. No restriction on surplus results from this amount being in excess of stated value.

Contingent Liabilities—Certain claims are pending against the Company but, in the opinion of the Company, these matters are not expected to have a significant effect on the consolidated financial position.

Subsequent Events—The Board of Directors declared on January 31, 1972 a 5% stock dividend to be paid March 30, 1972 to all stockholders of record on March 10, 1972.

ACCOUNTANTS' REPORT

Main Lafrentz & Co.
280 Park Avenue, New York, N. Y. 10017

To The Board of Directors and Stockholders of
National Starch and Chemical Corporation

We have examined the consolidated balance sheet of National Starch and Chemical Corporation and subsidiary companies as of December 31, 1971 and 1970, and the related consolidated statements of income, retained earnings and changes in financial position for the years then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances. We did not examine the financial statements of certain affiliates, which statements reflect total assets and sales constituting approximately 23% of the related consolidated totals. These statements were examined by other auditors whose reports thereon have been furnished to us and our opinion expressed herein, insofar as it relates to the amounts included for such affiliates, is based solely upon the reports of the other auditors.

In our opinion, based upon our examination and the reports of other auditors, the statements referred to above present fairly the consolidated financial position of National Starch and Chemical Corporation and subsidiary companies as of December 31, 1971 and 1970, and the results of their operations and of changes in financial position for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis, after giving retroactive effect to the inclusion, which we approve, of the equity method of accounting for joint ventures, as explained in the note "Consolidated Group" of Notes to Financial Statements.

Main Lafrentz & Co.
Certified Public Accountants

New York, N.Y.
February 22, 1972

NATIONAL STARCH AND CHEMICAL CORPORATION
AND SUBSIDIARY COMPANIES

Ten Year Summary of Financial Information—1962-1971

Operating Results

Year	Net Sales	Cost and Other Expenses (net)	Income Before Taxes—Consol. Operations	Income After Taxes—Consol. Operations	Net Income†	Net Income Per Common Share*†	Cash Dividends Per Common Share*	Depreciation
1971	**$149,338,057**	**$129,965,028**	**$19,373,029**	**$10,127,011**	**$11,193,330**	**$1.84**	**$.64**	**$4,875,462**
1970	134,941,493	118,064,942	16,876,551	8,848,374	9,710,520	1.59	.60	4,768,983
1969	128,057,991	112,230,455	15,827,536	7,966,873	8,624,055	1.41	.58	4,733,406
1968	125,630,958	107,748,415	17,882,543	8,899,154	9,462,924	1.56	.53	4,876,074
1967	111,882,834	97,958,229	13,924,605	7,428,960	7,955,135	1.38	.51	4,479,894
1966	105,200,030	91,304,508	13,895,522	7,382,773	7,829,717	1.36	.45	4,129,650
1965	94,856,432	82,837,949	12,018,483	6,486,433	6,858,276	1.19	.37	3,608,040
1964	83,499,340	73,315,230	10,184,110	5,231,134	5,396,832	.97	.34	2,934,708
1963	75,972,814	66,113,258	9,859,556	4,746,985	4,849,441	.88	.29	2,914,548
1962	70,566,152	61,724,425	8,841,727	4,350,784	4,356,699	.79	.26	2,861,459

Financial Position

Year	Current Assets	Current Liabilities	Working Capital	Plants, Properties and Equipment—Net of Depreciation	Capital Additions	Long term Debt	Common Stockholders' Equity	Equity Per Common Share*	Current Ratio
1971	**$50,048,301**	**$19,952,964**	**$30,095,337**	**$52,526,434**	**$ 9,585,952**	**$ 8,332,461**	**$68,512,580**	**$11.79**	**2.5 to 1**
1970	51,470,659	21,450,097	30,020,562	48,261,343	5,653,473	9,609,377	61,471,439	10.58	2.4 to 1
1969	43,446,187	14,913,327	28,532,860	47,413,873	9,095,190	14,052,896	55,720,549	9.62	2.9 to 1
1968	40,924,889	13,794,789	27,130,100	42,345,327	10,951,815	12,999,231	49,562,772	8.61	3.0 to 1
1967	35,679,009	9,683,993	25,995,016	36,411,072	8,444,712	12,604,783	52,427,899	9.09	3.7 to 1
1966	33,383,476	13,130,721	20,252,755	32,451,695	10,815,248	7,701,528	47,321,876	8.21	2.5 to 1
1965	27,037,775	9,913,277	17,124,498	25,815,361	6,004,470	2,051,956	42,661,940	7.39	2.7 to 1
1964	25,700,623	10,038,154	15,662,469	23,458,376	8,950,961	2,729,699	38,215,335	6.87	2.6 to 1
1963	26,819,098	8,604,597	18,214,501	17,489,009	2,271,257	6,406,687	30,531,802	5.52	3.1 to 1
1962	21,859,359	7,355,094	14,504,265	17,699,876	5,481,800	7,185,417	26,992,135	4.91	3.0 to 1

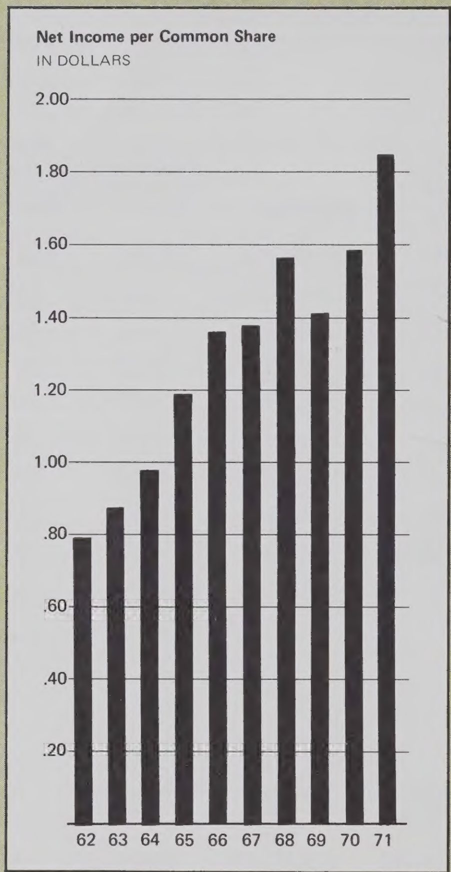
*Computed on average shares outstanding during the year and adjusted for 3% stock dividends in 1962, 1963 and 1964, 5% stock dividend in 1968 and 3 for 2 distributions in 1965 and 1969.

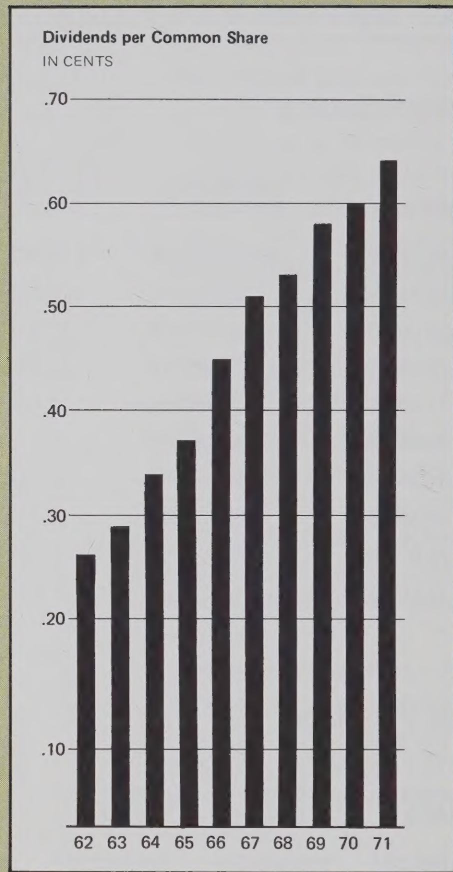
†Excludes extraordinary items.

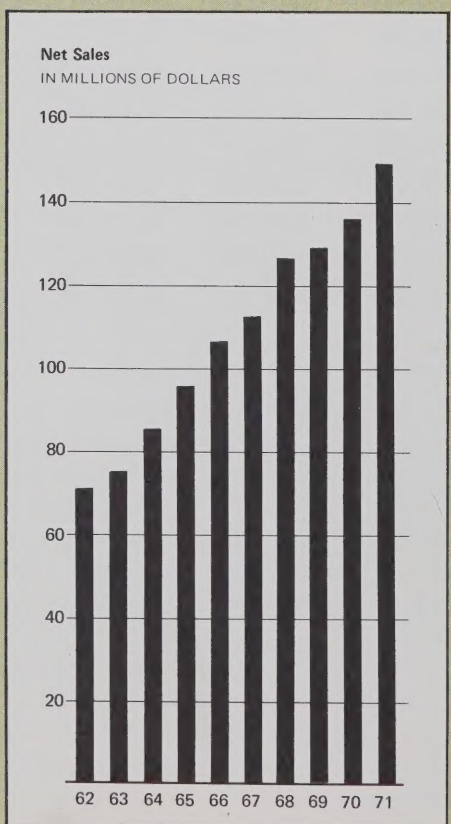
1968 and thereafter include Proctor Chemical Company, Inc.

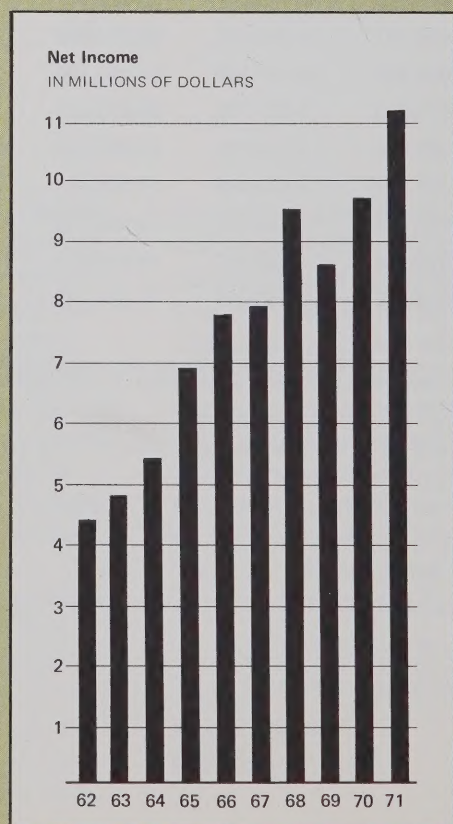
All years have been restated to reflect the equity method of accounting for joint ventures.

NATIONAL STARCH AND CHEMICAL CORPORATION
AND SUBSIDIARY COMPANIES









LOCATIONS

Includes joint ventures and associated companies.

Sales and Customer Service Centers

Atlanta
Buffalo
Canton, Mass.
Charlotte
Chicago
Cincinnati
Cleveland
Dallas-Ft. Worth
Denver
Detroit
Houston
Indianapolis
Los Angeles
Memphis
Milwaukee
Minneapolis
New Orleans
New York
No. Kansas City, Mo.
Philadelphia
Pittsburgh
Portland, Ore.
Salisbury, N. C.
St. Louis
San Francisco
Seattle

Melbourne, Australia
Sydney, Australia
Bramalea, Canada
Montreal, Canada
Toronto, Canada
Vancouver, Canada
Braunston, England
Manchester, England
Manor Park, England
Slough, England
Lille, France
Lyon, France
Frankfurt, Germany
Delft, Holland
Kingston, Jamaica
Tokyo, Japan
Mexico City, Mexico
Benoni South, South Africa
Caracas, Venezuela

Manufacturing Operations

Atlanta
Berkeley, Calif.
Bloomfield, N. J.
Buffalo
Canton, Mass.
Chicago
Cincinnati
Dallas-Ft. Worth
Indianapolis
Long Mott, Texas
Los Angeles
Memphis
Meredosia, Ill.
No. Kansas City, Mo.
Plainfield, N. J.
Salisbury, N. C.
San Francisco
Towaco, N. J.

Melbourne, Australia
Sydney, Australia
Bramalea, Canada
Collingwood, Canada
Montreal, Canada
Toronto, Canada
Vancouver, Canada
Battersea, England
Braunston, England
Goole, England
Manchester, England
Manor Park, England
Slough, England
Lestrem, France
Lyon, France
Vecquemont, France
Delft, Holland
Kingston, Jamaica
Chiba, Japan
Mexico City, Mexico
Benoni South, South Africa
Caracas, Venezuela

Executive Offices:

750 Third Avenue
New York, N. Y. 10017

Research Center:

Plainfield, N. J.

In Australia:
Inter-National Adhesives and Resins Pty. Ltd., Sydney
Jaede Inter-National Pty. Ltd., Melbourne

In Canada:
National Starch and Chemical Co. (Canada) Ltd., Toronto
LE PAGE'S Limited, Bramalea, Ont.

In England:
National Adhesives and Resins Limited, Slough
Laing-National Limited, Battersea
Gloy Products, Manor Park

In France:
Roquette-National Chimie, Lille
Bericol, S. A., Lyon

In Germany:
Delft-National Chemie Gmbh, Frankfurt

In Holland:
Delft-National Chemie, N. V. Delft

In Jamaica:
LE PAGE-Stacote Limited, Kingston

In Japan:
OJI-National Company, Ltd., Tokyo

In Mexico:
National Starch and Chemical de Mexico, S. A. de C. V., Mexico City

In South Africa:
Technical Adhesives & Chemical Products (Pty.) Ltd., Benoni South

In Switzerland:
Delft-N-Chemie A. G., Winterthur

In Venezuela:
Adgovenca, C. A., Caracas

The paper stock used in this report contains a number of National's specialty products for papermaking.